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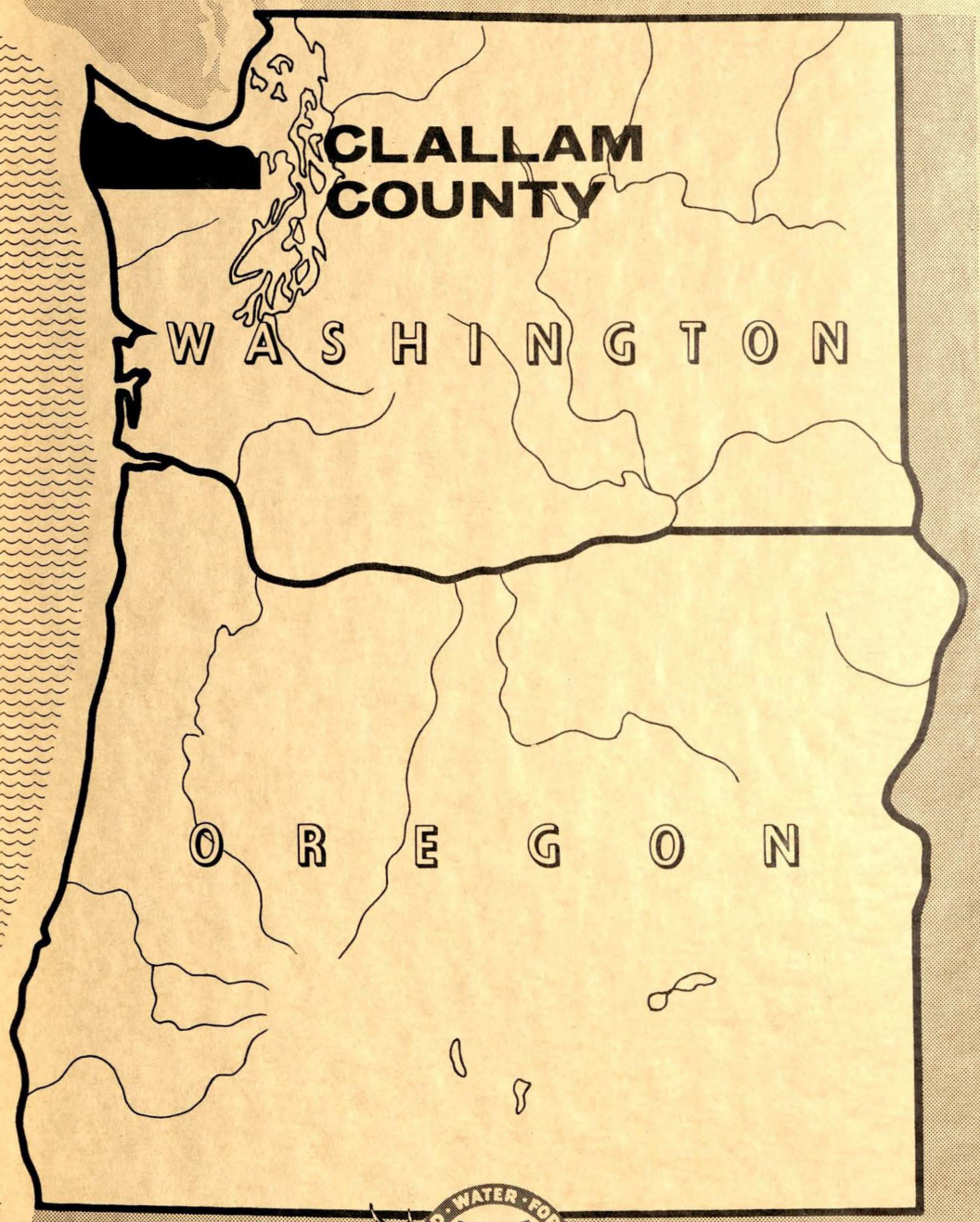
FOREST SURVEY REPORT 145
JULY 1962

# Forest Statistics for




PACIFIC NORTHWEST
FOREST AND RANGE EXPERIMENT STATION
U.S. DEPT. OF AGRICULTURE · FOREST SERVICE

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Forest Survey Report 145
July 1962

# FOREST STATISTICS FOR

# CLALLAM COUNTY, WASHINGTON

by

Benjamin Spada

PACIFIC NORTHWEST
FOREST AND RANGE EXPERIMENT STATION
R. W. Cowlin, Director Portland, Oregon

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

# PREFACE

This publication summarizes the results of the third inventory of the forests of Clallam County, Wash., completed in 1960. Previous inventories of Clallam County were made in 1932 and 1940. The results of these inventories were published as "Forest Statistics for Clallam County, Washington," March 1934, and "Forest Statistics for Clallam County, Washington," Forest Survey Report 79, October 1940. Such inventories are a part of the Forest Survey, a nationwide project of the Forest Service authorized by the McSweeney-McNary Forest Research Act of 1928, amended June 25, 1949. The purpose of the Forest Survey is to periodically inventory the extent and condition of forest lands and the volume of timber on them, to ascertain rates of forest growth and depletion, to estimate present consumption of timber products and probable future trends in timber requirements, to analyze and make available survey information needed in the formulation of forest policies and programs, and to make resurveys as necessary to keep the basic information up to date.

The Forest Survey is conducted in the various forest regions of the Nation by the regional Experiment Stations of the Forest Service. In the States of Oregon and Washington, it is an activity of the Pacific Northwest Forest and Range Experiment Station at Portland, Oreg.

The 1960 inventory of Clallam County was based primarily on sampling techniques which did not include a type map, thus no county type map was prepared.

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## CLALLAM COUNTY'S FOREST RESOURCE IN BRIEF

COMMERCIAL FOREST LAND--
- Covers 65 percent of the county or 728,000 acres;
- Is 51 percent publicly owned;
- Is 51 percent of the total in sawtimber stands; and
- Is 12 percent of the total in hardwood types.

GROWING STOCK VOLUME--
- Amounts to 3,371 million cubic feet;
- Is 59 percent publicly owned; and
- Is 94 percent softwoods.

SAWTIMBER VOLUME--
- Totals 19,467 million board feet, International 1/4-inch rule (15,979 million board feet, Scribner rule);
- Is 49 percent publicly owned;
- Is 97 percent of the total in softwoods; and
- Is 47 percent of the total in trees less than 29 inches in diameter.

NATIONAL FOREST OWNERSHIP--
- Controls 25 percent of the total commercial forest area;
- Has 26 percent of the total sawtimber area; and
- Has 31 percent of the sawtimber volume.

OTHER PUBLIC OWNERSHIP--
- Holds 26 percent of the commercial forest area;
- Has 23 percent of the total sawtimber area; and
- Has 18 percent of the sawtimber volume.

FOREST INDUSTRY OWNERSHIP--
- Controls 33 percent of the total commercial forest area;
- Has 38 percent of the sawtimber area; and
- Has 43 percent of the sawtimber volume.

FARMER AND MISCELLANEOUS PRIVATE OWNERSHIP--
- Holds 16 percent of the total commercial forest area;
- Has 13 percent of the sawtimber area; and
- Has 8 percent of the sawtimber volume.

AVERAGE ANNUAL CUT FOR THE PAST 5 YEARS--
- Has been 259 million board feet, International 1/4-inch rule (211 million board feet, Scribner rule); and
- Has been more than 99 percent softwoods.

Table 1.--Area by land classes, Clallam County, 1960

(In acres)

| Land class | Area |
|---|---|
| Commercial forest | 728,000 |
| Unproductive forest | 109,000 |
| Productive-reserved forest | 199,000 |
| Total forest | 1,036,000 |
| Nonforest | 1/ 83,000 |
| All land | 2/ 1,119,000 |

1/ Includes 788 acres of water according to Survey standards of area classification but defined by Bureau of the Census as land.

2/ From U.S. Bureau of the Census, Land and Water Area of the United States, 1950.

Table 2.--Area of commercial forest land, by stand-size and ownership classes, Clallam County, 1960

(In acres)

| Stand-size class | All ownerships | National Forest[1/] | Other public | Forest industry | Farmer and miscel-laneous private |
|---|---|---|---|---|---|
| Sawtimber stands: | | | | | |
| Large | 194,000 | 59,000 | 27,000 | 95,000 | 13,000 |
| Small | 175,000 | 37,000 | 59,000 | 46,000 | 33,000 |
| Total | 369,000 | 96,000 | 86,000 | 141,000 | 46,000 |
| Poletimber stands | 217,000 | 44,000 | 76,000 | 57,000 | 40,000 |
| Sapling and seedling stands | 133,000 | 33,000 | 30,000 | 43,000 | 27,000 |
| Nonstocked areas | 9,000 | 9,000 | -- | -- | -- |
| All classes | 728,000 | 182,000 | 192,000 | 241,000 | 113,000 |

[1/] Data for National Forest based on National Forest working circle inventories, 1953-54.

Table 3.--Area of commercial forest land, by stocking classes of growing-stock trees and by stand-size classes, Clallam County, 1960

(In acres)

| Stocking class | All stands | Sawtimber stands | Poletimber stands | Sapling and seedling stands | Nonstocked stands |
|---|---|---|---|---|---|
| 70 percent or more | 604,000 | 358,000 | 180,000 | 66,000 | (1/) |
| 40 to 70 percent | 93,000 | 11,000 | 34,000 | 48,000 | (1/) |
| 10 to 40 percent | 22,000 | -- | 3,000 | 19,000 | (1/) |
| Less than 10 percent | 9,000 | (1/) | (1/) | (1/) | 9,000 |
| All classes | 728,000 | 369,000 | 217,000 | 133,000 | 9,000 |

1/ Not applicable.

Table 4.--Area of commercial forest land, by forest types and ownership classes, Clallam County, 1960

(In acres)

| Type | All ownerships | Public ownerships | Private ownerships |
|---|---|---|---|
| Douglas-fir | 198,000 | 155,000 | 43,000 |
| Western hemlock | 332,000 | 137,000 | 195,000 |
| Sitka spruce | 25,000 | 12,000 | 13,000 |
| Pacific silver fir | 47,000 | 44,000 | 3,000 |
| Grand fir | 3,000 | -- | 3,000 |
| Western redcedar | 30,000 | 6,000 | 24,000 |
| Red alder | 81,000 | 11,000 | 70,000 |
| Bigleaf maple | 3,000 | -- | 3,000 |
| Nonstocked | 9,000 | 9,000 | -- |
| All types | 728,000 | 374,000 | 354,000 |

Table 5.--Area of noncommercial forest land, by forest types, Clallam County, 1960

(In acres)

| Type | All areas | Productive-reserved areas | Unproductive areas |
|---|---|---|---|
| Douglas-fir | 94,000 | 94,000 | -- |
| Hemlock—Sitka spruce | 83,000 | 83,000 | -- |
| Fir—spruce | 20,000 | 20,000 | -- |
| Lodgepole pine | (1/) | (1/) | -- |
| Hardwoods | 2,000 | 2,000 | -- |
| Nonstocked | (1/) | (1/) | -- |
| Noncommercial rocky | 22,000 | -- | 22,000 |
| Subalpine | 87,000 | -- | 87,000 |
| All types | 308,000 | 199,000 | 109,000 |

1/ Less than 500 acres.

Table 6.--Volume of timber on commercial forest land, by class of timber and by softwoods and hardwoods, Clallam County, 1960

| Class of timber | All species | Softwoods | Hardwoods |
|---|---|---|---|
| | Million cubic feet | | |
| Sawtimber trees: | | | |
| Saw-log portion | 2,711 | 2,601 | 110 |
| Upper-stem portion | 204 | 196 | 8 |
| Total | 2,915 | 2,797 | 118 |
| Poletimber trees | 456 | 382 | 74 |
| All growing-stock trees | 3,371 | 3,179 | 192 |
| Sound cull trees: | | | |
| Sawtimber-size | 3 | -- | 3 |
| Poletimber-size | 13 | 1 | 12 |
| Total | 16 | 1 | 15 |
| Rotten cull trees: | | | |
| Sawtimber-size | 3 | 3 | -- |
| Poletimber-size | -- | -- | -- |
| Total | 3 | 3 | -- |
| Salvable dead trees: | | | |
| Sawtimber-size | 106 | 105 | 1 |
| Poletimber-size | -- | -- | -- |
| Total | 106 | 105 | 1 |
| Total, all timber | 3,496 | 3,288 | 208 |

Table 7.--Volume of growing stock and sawtimber on commercial forest land, by ownership classes and by softwoods and hardwoods, Clallam County, 1960

| Timber and ownership classes | All species | Softwoods | Hardwoods |
|---|---|---|---|
| | Million cu. ft. | Million cu. ft. | Million cu. ft. |
| Growing stock: | | | |
| National Forest[1/] | 920 | 920 | -- |
| Other public | 736 | 679 | 57 |
| Forest industry | 1,398 | 1,348 | 50 |
| Farmer and miscellaneous private | 317 | 232 | 85 |
| All ownerships | 3,371 | 3,179 | 192 |
| | Million bd. ft. | Million bd. ft. | Million bd. ft. |
| Sawtimber (International ¼-inch rule): | | | |
| National Forest[1/] | 6,127 | 6,127 | -- |
| Other public | 3,403 | 3,231 | 172 |
| Forest industry | 8,359 | 8,236 | 123 |
| Farmer and miscellaneous private | 1,578 | 1,206 | 372 |
| All ownerships | 19,467 | 18,800 | 667 |
| Sawtimber (Scribner rule): | | | |
| National Forest[1/] | 4,959 | 4,959 | -- |
| Other public | 2,839 | 2,674 | 165 |
| Forest industry | 6,835 | 6,716 | 119 |
| Farmer and miscellaneous private | 1,346 | 983 | 363 |
| All ownerships | 15,979 | 15,332 | 647 |

[1/] National Forest data based on National Forest working circle inventories, 1953-54.

Table 8.--Volume of growing stock on commercial forest land, by species and diameter classes, Clallam County, 1960

| Species | All classes | Diameter class (inches at breast height) 5.0-6.9 | 7.0-8.9 | 9.0-10.9 | 11.0-12.9 | 13.0-14.9 | 15.0-16.9 | 17.0-18.9 | 19.0-28.9 | 29.0-38.9 | 39.0 and larger |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Million cubic feet | | | | | | | | | | |
| Softwoods: | | | | | | | | | | | |
| Douglas-fir | 585 | 26 | 36 | 52 | 42 | 34 | 34 | 24 | 86 | 79 | 172 |
| Western white pine | 4 | -- | -- | 1 | -- | -- | -- | -- | 3 | -- | -- |
| Grand fir | 14 | 1 | 3 | 1 | 3 | 2 | 1 | -- | 3 | -- | -- |
| Pacific silver fir | 307 | 6 | 7 | 9 | 7 | 13 | 18 | 16 | 84 | 83 | 64 |
| Sitka spruce | 110 | 2 | 3 | 4 | 4 | 3 | 2 | 3 | 14 | 17 | 58 |
| Mountain hemlock | 3 | -- | -- | -- | -- | -- | -- | -- | 1 | 2 | -- |
| Western hemlock | 1,903 | 40 | 75 | 99 | 112 | 112 | 111 | 117 | 568 | 409 | 260 |
| Alaska-cedar | 4 | -- | -- | -- | -- | -- | -- | -- | 3 | 1 | -- |
| Western redcedar | 249 | 4 | 6 | 7 | 3 | 4 | 2 | 7 | 26 | 23 | 167 |
| Total | 3,179 | 79 | 130 | 173 | 171 | 168 | 168 | 167 | 788 | 614 | 721 |
| Hardwoods: | | | | | | | | | | | |
| Red alder | 168 | 22 | 21 | 23 | 26 | 18 | 19 | 14 | 23 | 2 | -- |
| Black cottonwood | 6 | -- | -- | -- | 1 | 1 | 1 | 1 | 2 | -- | -- |
| Bigleaf maple | 16 | 2 | 3 | 2 | 1 | 2 | 2 | -- | 4 | -- | -- |
| Pacific madrone | 2 | 1 | 1 | -- | -- | -- | -- | -- | -- | -- | -- |
| Total | 192 | 25 | 25 | 25 | 28 | 21 | 22 | 15 | 29 | 2 | -- |
| All species | 3,371 | 104 | 155 | 198 | 199 | 189 | 190 | 182 | 817 | 616 | 721 |

Table 9.--Volume of sawtimber on commercial forest land, by species and diameter classes, Clallam County, 1960 (International ¼-inch rule)

| Species | Diameter class (inches at breast height) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | All classes | 11.0-12.9 | 13.0-14.9 | 15.0-16.9 | 17.0-18.9 | 19.0-28.9 | 29.0-38.9 | 39.0 and larger |
| | Million board feet | | | | | | | |
| Softwoods: | | | | | | | | |
| Douglas-fir | 3,204 | 178 | 176 | 193 | 152 | 574 | 568 | 1,363 |
| Western white pine | 24 | -- | 1 | -- | -- | 18 | -- | 5 |
| Grand fir | 44 | 10 | 10 | 4 | -- | 20 | -- | -- |
| Pacific silver fir | 1,889 | 29 | 58 | 90 | 86 | 537 | 589 | 500 |
| Sitka spruce | 874 | 18 | 14 | 9 | 15 | 97 | 145 | 576 |
| Mountain hemlock | 19 | -- | 1 | -- | 1 | 8 | 9 | -- |
| Western hemlock | 11,158 | 457 | 530 | 600 | 678 | 3,782 | 3,028 | 2,083 |
| Alaska-cedar | 24 | -- | 1 | 1 | 2 | 18 | 2 | -- |
| Western redcedar | 1,564 | 9 | 13 | 11 | 32 | 148 | 151 | 1,200 |
| Total | 18,800 | 701 | 804 | 908 | 966 | 5,202 | 4,492 | 5,727 |
| Hardwoods: | | | | | | | | |
| Red alder | 571 | 119 | 92 | 107 | 82 | 153 | 18 | -- |
| Black cottonwood | 35 | 5 | 4 | 4 | 9 | 13 | -- | -- |
| Bigleaf maple | 59 | 6 | 14 | 10 | 3 | 26 | -- | -- |
| Pacific madrone | 2 | 1 | 1 | -- | -- | -- | -- | -- |
| Total | 667 | 131 | 111 | 121 | 94 | 192 | 18 | -- |
| All species | 19,467 | 832 | 915 | 1,029 | 1,060 | 5,394 | 4,510 | 5,727 |

Table 10.--Volume of sawtimber on commercial forest land, by species and diameter classes, Clallam County, 1960 (Scribner rule)

| Species | Diameter class (inches at breast height) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | All classes | 11.0-12.9 | 13.0-14.9 | 15.0-16.9 | 17.0-18.9 | 19.0-28.9 | 29.0-38.9 | 39.0 and larger |
| | Million board feet | | | | | | | |
| Softwoods: | | | | | | | | |
| Douglas-fir | 2,590 | 146 | 150 | 164 | 128 | 473 | 460 | 1,069 |
| Western white pine | 20 | -- | 1 | -- | -- | 15 | -- | 4 |
| Grand fir | 37 | 8 | 8 | 4 | -- | 17 | -- | -- |
| Pacific silver fir | 1,552 | 25 | 51 | 78 | 73 | 448 | 479 | 398 |
| Sitka spruce | 711 | 15 | 12 | 8 | 13 | 82 | 119 | 462 |
| Mountain hemlock | 15 | -- | -- | -- | 1 | 6 | 8 | -- |
| Western hemlock | 9,163 | 379 | 450 | 508 | 573 | 3,131 | 2,459 | 1,663 |
| Alaska-cedar | 20 | -- | 1 | 1 | 1 | 15 | 2 | -- |
| Western redcedar | 1,224 | 8 | 11 | 9 | 26 | 119 | 120 | 931 |
| Total | 15,332 | 581 | 684 | 772 | 815 | 4,306 | 3,647 | 4,527 |
| Hardwoods: | | | | | | | | |
| Red alder | 553 | 112 | 88 | 103 | 80 | 152 | 18 | -- |
| Black cottonwood | 34 | 5 | 4 | 3 | 9 | 13 | -- | -- |
| Bigleaf maple | 58 | 6 | 13 | 10 | 3 | 26 | -- | -- |
| Pacific madrone | 2 | 1 | 1 | -- | -- | -- | -- | -- |
| Total | 647 | 124 | 106 | 116 | 92 | 191 | 18 | -- |
| All species | 15,979 | 705 | 790 | 888 | 907 | 4,497 | 3,665 | 4,527 |

Table 11.--Volume of salvable dead sawtimber-size trees on commercial forest land, by softwoods and hardwoods, Clallam County, 1960

| Species group | Volume | |
|---|---|---|
| | International 1/4-inch rule | Scribner rule |
| | Million board feet | |
| Softwoods | 701 | 569 |
| Hardwoods | 6 | 6 |
| All species | 707 | 575 |

Table 12.--Annual mortality of growing stock and sawtimber on commercial forest land, by ownership classes and by softwoods and hardwoods, Clallam County, 1960

| Ownership class | Growing stock | | | Sawtimber (International 1/4-inch rule) | | | Sawtimber (Scribner rule) | | |
|---|---|---|---|---|---|---|---|---|---|
| | All species | Softwoods | Hardwoods | All species | Softwoods | Hardwoods | All species | Softwoods | Hardwoods |
| | --- Million cu. ft. --- | | | --- Million bd. ft. --- | | | --- Million bd. ft. --- | | |
| National Forest | 11 | 11 | -- | 60 | 60 | -- | 48 | 48 | -- |
| Other public | 7 | 6 | 1 | 31 | 30 | 1 | 26 | 25 | 1 |
| Forest industry | 9 | 9 | -- | 50 | 50 | -- | 42 | 41 | 1 |
| Farmer and miscellaneous private | 1 | 1 | -- | 4 | 4 | -- | 3 | 3 | -- |
| All ownerships | 28 | 27 | 1 | 145 | 144 | 1 | 119 | 117 | 2 |

Table 13.--Number of growing-stock trees on commercial forest land, by diameter classes and by softwoods and hardwoods, Clallam County, 1960

| Diameter class (inches d.b.h.) | All species | Softwoods | Hardwoods |
|---|---|---|---|
| 5.0 - 6.9 | 33,098,000 | 27,959,000 | 5,139,000 |
| 7.0 - 8.9 | 20,460,000 | 17,755,000 | 2,705,000 |
| 9.0 - 10.9 | 13,748,000 | 12,125,000 | 1,623,000 |
| 11.0 - 12.9 | 8,962,000 | 7,650,000 | 1,312,000 |
| 13.0 - 14.9 | 5,693,000 | 4,976,000 | 717,000 |
| 15.0 - 16.9 | 4,025,000 | 3,498,000 | 527,000 |
| 17.0 - 18.9 | 2,974,000 | 2,676,000 | 298,000 |
| 19.0 - 28.9 | 7,573,000 | 7,181,000 | 392,000 |
| 29.0 - 38.9 | 2,568,000 | 2,554,000 | 14,000 |
| 39.0 and larger | 1,699,000 | 1,699,000 | -- |
| All classes | 100,800,000 | 88,073,000 | 12,727,000 |

Table 14.--Number of cull and salvable dead trees on commercial forest land, by diameter groups and by softwoods and hardwoods, Clallam County, 1960

| Diameter class (inches d.b.h.) | Cull trees | Salvable dead trees |
|---|---|---|
| Softwoods: | | |
| 5.0 - 10.9 | 235,000 | -- |
| 11.0 - 18.9 | 79,000 | 804,000 |
| 19.0 and larger | 118,000 | 589,000 |
| Total | 432,000 | 1,393,000 |
| Hardwoods: | | |
| 5.0 - 10.9 | 2,542,000 | -- |
| 11.0 - 18.9 | 189,000 | 81,000 |
| 19.0 and larger | 14,000 | -- |
| Total | 2,745,000 | 81,000 |
| All species | 3,177,000 | 1,474,000 |

Table 15.--Timber harvest by ownership class, Clallam County, 1950-60 (Scribner rule)

| Year[1/] | Private | State | National Forest | Other public | Total |
|---|---|---|---|---|---|
| | Thousand board feet | | | | |
| 1950 | 149,541 | | 52,800 | 30,170 | 232,511 |
| 1951 | 127,778 | | 70,100 | 32,000 | 229,878 |
| 1952 | 138,511 | | 108,984 | 21,675 | 269,170 |
| 1953 | 102,274 | | 200,800 | 34,007 | 337,081 |
| 1954 | 115,623 | | 196,200 | 17,824 | 329,647 |
| 1955 | 128,424 | 21,988 | 129,477 | 40,650 | 320,539 |
| 1956 | 147,659 | 28,247 | 62,200 | 3,272 | 241,378 |
| 1957 | 149,377 | 13,609 | 36,699 | 4,166 | 203,851 |
| 1958 | 113,470 | 5,255 | 47,038 | 88 | 165,851 |
| 1959 | 177,032 | 32,976 | 66,053 | -- | 276,061 |
| 1960 | 197,117 | 28,360 | 46,467 | 11,668 | 283,612 |

[1/] For the years 1950-54, data for private and State ownerships were not separated.

## ACCURACY OF THE 1960 REINVENTORY DATA

### Forest Area and Timber Volume

Estimates of forest area and timber volume for the Quilcene and Soleduck Working Circles in Clallam County, administered by the Olympic National Forest, were obtained from the most recent working circle inventory. The remainder of Clallam County was sampled for forest area and timber volume by Forest Survey. Sampling errors were calculated for only the major items as shown in table 16, using data from both sources.

Table 16 implies that the values which would result from a 100-percent sample lie within the ranges indicated for the specified probabilities.

Table 16.--Sampling error of estimates of forest area and timber volume

| Item | Estimated total | Sampling error in percent | |
|---|---|---|---|
| | | Odds, 2 out of 3 | Odds, 19 out of 20 |
| Commercial forest land | 728,000 acres | ±1.9 | ±3.8 |
| Noncommercial forest land | 308,000 acres | ±.3 | ±.6 |
| Volume (Scribner) | 15,979 million board feet | ±9.1 | ±17.8 |
| Volume | 3,371 million cubic feet | ±7.2 | ±14.2 |

Sampling errors for estimates other than total area or total volume were not calculated. However, sampling errors for these can be roughly approximated by using figure 1, page 18.

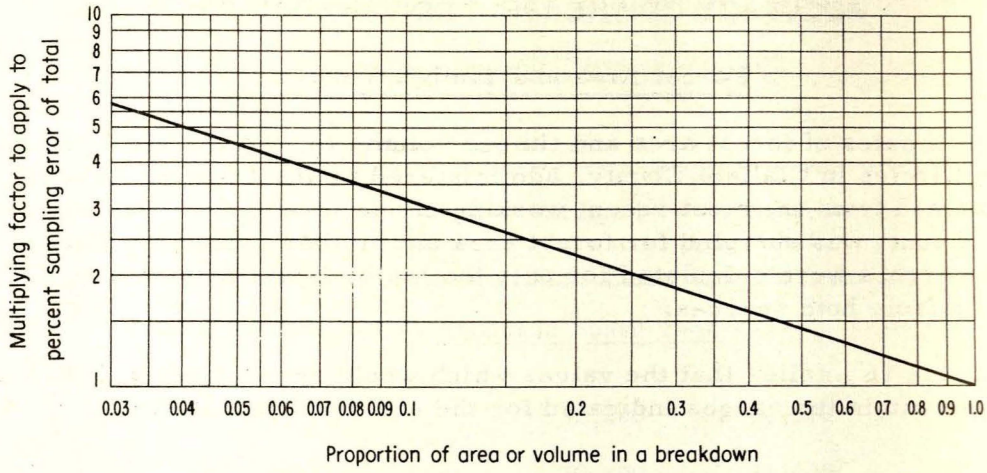


Figure 1.--Ratio of sampling error of an area or volume breakdown to sampling error of total area or volume.

For example, assume that the sampling error reported for a total is ±5 percent, and an estimate of the sampling error for an item which is only 0.25 of this total is desired. Reading from figure 1, the multiplying factor for a proportion of 0.25 is 2. The estimated sampling error for the item is then 2 times ±5 percent, the sampling error of the total, or ±10 percent.

## DIFFERENCES IN RESULTS OF INVENTORIES

Some of the differences between the forest-area and timber-volume statistics from the first and second reinventories are due to physical change, such as cutting of stands, restocking of deforested areas, and growth of stands into the next larger size class. Some are due to variations in the procedures used to interpret and classify forest conditions, to variations in standards of utilization, to changes in Forest Survey standards and definitions, and to area excluded from the second reinventory because of the increase in reserved area between inventories. These variations make it difficult to draw meaningful conclusions from comparison of the statistics of the two inventories; however, certain general facts concerning Clallam County's present forest condition appear evident.

For one, the area of commercial forest land has decreased by about 46,000 acres, principally as a result of the increase in reserved area.

Also, considering the differences in standards of the two inventories, it appears there has been a real decrease in the sawtimber volume of the principal species between inventories.

It also appears there has been a real increase in hardwood sawtimber volume between inventories despite a general volume decline in the county. Most of the hardwood volume occurs on cutover conifer lands which have restocked with hardwoods, and such areas have increased in the past 20 years.

Table 17.--Comparison of forest-area statistics for Clallam County, first and second reinventories

(In acres)

| Land-use class | 1939 | 1960 |
|---|---|---|
| Commercial forest | 774,000 | 728,000 |
| Noncommercial forest: | | |
| Productive-reserved | 162,000 | 199,000 |
| Unproductive | 105,000 | 109,000 |
| Total noncommercial forest | 267,000 | 308,000 |
| Total forest | 1,041,000 | 1,036,000 |
| Nonforest | 72,000 | 83,000 |
| All land | 1,113,000 | 1,119,000 |

Table 18.--Comparison of timber-volume statistics for Clallam County, first and second reinventories

(In million board feet, Scribner rule)

| Species | 1939 | 1960 |
|---|---|---|
| Softwoods: | | |
| Douglas-fir | 4,129 | 2,590 |
| Pacific silver fir | 2,211 | 1,552 |
| Sitka spruce | 1,557 | 711 |
| Western hemlock | 11,303 | 9,163 |
| Western redcedar | 2,290 | 1,224 |
| Other | 63 | 92 |
| Total | 21,553 | 15,332 |
| Hardwoods: | | |
| Red alder | 53 | 553 |
| Other | 4 | 94 |
| Total | 57 | 647 |
| All species | 21,610 | 15,979 |

## FOREST SURVEY PROCEDURES

Procedures used in the second reinventory of Clallam County were materially different from those used in the previous inventories.

For the area in Clallam County other than National Forest ownership, Forest Survey made use of a double sampling procedure. The basic sample consisted of field plots located on a systematic grid 3.4 miles square. The field plots were supplemented by a systematic grid of photo plots. All the photo plots and the field plot locations were examined on aerial photographs and classified into one of three land-use classes: nonforest, noncommercial forest, or commercial forest land.

The field plots, consisting of a cluster of three 1/5-acre circular subplots spaced at 6-chain intervals, were located, established, and measured in the field. These plots provided a check on the accuracy of the photo interpretation of land-use class and were combined with the photo plots to provide an adjusted estimate of the proportion of area by land-use classes. The field plots also provided data on ownership, forest type, stocking class, etc., for use in subdividing the adjusted gross commercial forest land area into area by ownership class, forest type, stand-size class, and stocking class.

Tree measurement data obtained on the field plots expanded by the total adjusted acreage of commercial forest land provided estimates of volume and mortality by species and size class as well as by ownership.

Data for the National Forest area was obtained from the most recent National Forest working circle inventories.

## DEFINITION OF TERMS

### Land Area

#### Total Land Area

Includes dry land and unmeandered water surfaces.

#### Forest Land Area

Land at least 10 percent stocked by trees of any size, or formerly having such tree cover, and not currently developed for nonforest use. Minimum area of forest land recognized in reinventory was 10 acres where type maps were used, and 1 acre where sampling procedures were used.

#### Nonforest Land Area

Land that does not qualify as forest land. Minimum area recognized in the reinventory of the counties was 10 acres where type maps were used and 1 acre where sampling procedures were used.

## Forest Land Classes

### Commercial Forest Land Area

Forest land which is producing or capable of producing industrial wood and not withdrawn from timber utilization.

### Noncommercial Forest Land Area

Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and productive public forest land withdrawn from commercial timber use through statute or administrative regulation.

## Types

### Commercial Forest Land Type

Forest land is typed on the basis of the predominant species, as indicated by cubic volume for sawtimber and poletimber stands and number of trees for sapling and seedling stands, or on the basis of forest condition, such as nonstocked cutover or burned-over land. Where none of the indicated species comprise 50 percent or more of a given stand, the stand is classified on the basis of plurality of cubic volume or number of trees. In classifying forest land by type, the minimum area recognized is 1 acre.

### Noncommercial Forest Land Types

Productive-reserved. Public forest land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land. Types designated the same as for commercial forest land.

Unproductive. Forest land incapable of yielding crops of industrial wood products (usually sawtimber) because of adverse site conditions.

Subalpine. Forest stands at the upper elevational limits of tree growth.

Noncommercial rocky. Areas within the commercial forest zone but so steep and rocky that they are incapable of producing usable wood products.

### Nonforest Land Types

Vegetative. Cultivated land, stump pasture, grass, or brush on nonforest land.

Nonvegetative. Includes barrens and towns.

Unmeandered water. Includes unmeandered streams and lakes, and tideflats.

## Tree Classes

### Sawtimber Tree

Tree of commercial species, 11.0 inches d.b.h. and larger, that contains at least one 16-foot coniferous saw log or one 8-foot hardwood saw log to a variable top diameter never less than 8 inches inside the bark. Also, 25 percent or more of the gross board-foot volume must be free from rot or defect.

### Poletimber Tree

Tree of commercial species, 5.0 to 10.9 inches d.b.h., in which 25 percent or more of the gross cubic-foot volume is free from rot and defect.

### Sapling and Seedling Trees

Live trees of commercial species, less than 5.0 inches d.b.h., and of good form and vigor.

### Cull Tree

Live tree of sawtimber or poletimber size that is unmerchantable for saw logs, now or prospectively, because of defect, rot, or species.

Sound cull tree. Live tree of sawtimber or poletimber size that contains 25 percent or more of sound volume but will not make at least one merchantable saw log, now or prospectively, because of roughness, poor form, or species.

Rotten cull tree. Live tree of sawtimber or poletimber size in which less than 25 percent of the total volume is sound.

### Mortality Tree

Tree which has died from natural causes and which was not a cull tree at the time of death.

### Salvable Dead Tree

Standing or down dead tree that contains 25 percent or more of sound volume and at least one merchantable 16-foot coniferous or 8-foot hardwood saw log.

## Stand-Size Classes

### Sawtimber Stand

Stand of sawtimber trees having a minimum per-acre net volume of 1,500 board feet (International 1/4-inch rule).

Large sawtimber stand. Stand in which the majority of the volume is in trees 21.0 inches d.b.h. and larger.

Small sawtimber stand. Stand in which the majority of the volume is in trees from 11.0 to 20.9 inches d.b.h.

### Poletimber Stand

Stand failing to meet sawtimber stand specifications but at least 10 percent stocked with poletimber and larger (5.0 inches d.b.h. and larger) trees and with at least half the minimum stocking in poletimber trees.

### Sapling and Seedling Stand

Stand not qualifying as either a sawtimber or poletimber stand but at least 10 percent stocked with trees of commercial species and with at least half the minimum stocking in sapling and seedling trees.

### Nonstocked Area

An area less than 10 percent stocked with present or potential growing-stock trees.

## Stocking

Stocking is the extent to which growing space is effectively utilized by present or potential growing-stock trees of commercial species. "Degree of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands. Stocking may be measured in terms of number of trees, volume, basal area, cover canopy, or other criterion or combination of criteria.

### Well-Stocked Stand

A stand that is 70 percent or more stocked with present or potential growing-stock trees.

### Medium-Stocked Stand

A stand that is 40 to 69 percent stocked with present or potential growing-stock trees.

### Poorly Stocked Stand

A stand that is 10 to 39 percent stocked with present or potential growing-stock trees.

### Nonstocked Area

An area less than 10 percent stocked with present or potential growing-stock trees.

## Timber Volume

### Live Sawtimber Volume

Net volume in board feet of live sawtimber trees of commercial species:

Scribner rule. The common board-foot log rule used in determining volume of sawtimber in the Pacific Northwest.

International 1/4-inch rule. The standard board-foot log rule adopted nationally by the Forest Service for the presentation of Forest Survey volume statistics.

### Growing Stock

Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark.

### All-Timber Volume

Net volume in cubic feet of live and salvable dead sawtimber trees and poletimber trees of commercial species, and cull trees of all species from stump to a minimum 4.0-inch top outside bark.

## Ownership Classes

### National Forest Lands

Federal lands which have been designated by Executive order or statute as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones title III lands.

### Other Federal Lands

Federal lands other than National Forests, including lands administered by the Bureau of Land Management, Bureau of Indian Affairs, and miscellaneous Federal agencies.

State, County, and Municipal Lands

Lands owned by States, counties, and local public agencies, or lands leased by these governmental units for more than 50 years.

Forest Industry Lands

Lands owned by companies or individuals operating wood-using plants.

Farmer-Owned Lands

Lands owned by operators of farms.

Miscellaneous Private Lands

Privately owned lands other than forest industry or farmer-owned lands.

## TREE SPECIES

Tree species commonly found in Clallam County include:

Softwoods:
- Alaska-cedar (Chamaecyparis nootkatensis)
- Douglas-fir (Pseudotsuga menziesii)
- Grand fir (Abies grandis)
- Mountain hemlock (Tsuga mertensiana)
- Pacific silver fir (Abies amabilis)
- Sitka spruce (Picea sitchensis)
- Western hemlock (Tsuga heterophylla)
- Western redcedar (Thuja plicata)
- Western white pine (Pinus monticola)

Hardwoods:
- Bigleaf maple (Acer macrophyllum)
- Black cottonwood (Populus trichocarpa)
- Pacific madrone (Arbutus menziesii)
- Red alder (Alnus rubra)

## RECENT FOREST SURVEY REPORTS

| Number | Title | Date |
|---|---|---|
| 144 | Forest Statistics for Jefferson County, Washington | June 1962 |
| 143 | Forest Statistics for King County, Washington | June 1962 |
| 142 | Forest Statistics for Island and Kitsap Counties, Washington, 1959; San Juan County, Washington, 1960 | May 1962 |
| 141 | Forest Statistics for Pierce County, Washington | May 1962 |
| 140 | 1960 Washington Log Production | March 1962 |
| 139 | Forest Statistics for Okanogan County, Washington | March 1962 |
| 138 | 1960 Oregon Log Production | January 1962 |
| 137 | Forest Statistics for Grant County, Oregon | November 1960 |
| 136 | Forest Statistics for Southeast Washington | July 1960 |
| 135 | Forest Statistics for Umatilla and Union Counties, Oregon | April 1960 |
| 134 | Forest Statistics for Wallowa County, Oregon | April 1960 |
| 133 | Forest Statistics for Skagit and Whatcom Counties, Washington | September 1959 |

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